Understanding Basic Concept of Electrical and Electronic Systems

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Editors

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CONTENTS

30. ACTIVE BAND PASS FILTER

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30.0 Abstract:

Active band pass filters are simply filters constructed by using operational amplifiers as active devices. Active filters provide signals un-attenuated over a specified band or spread of frequencies called the "Pass band". For a low pass filter this pass band starts from 0Hz or DC and continues up to the specified cut-off point at -3db. Equally, for a high pass filter the pass band starts from this -3dB cut-off frequency and continues up to infinity or the maximum open loop gain for an active filter. However, the Active Band Pass Filter is slightly different in that it will only pass frequencies or signals within a certain "Band" or range of frequencies that are set between two cut-off or corner points labeled "lower frequency" (fL) and "higher frequency" (fH) while attenuating any signals outside of these two points.

30.1 Description:

As we saw previously in the Passive Band Pass Filter tutorial, the principal characteristic of a Band Pass Filter or any filter for that matter is its ability to pass frequencies relatively unattenuated over a specified band or spread of frequencies called the "Pass band". For a low pass filter this pass band starts from 0Hz or DC and continues up to the specified cut-off point at -3dB. Equally, for a high pass filter the pass band starts from this -3dB cut-off frequency and continues up to